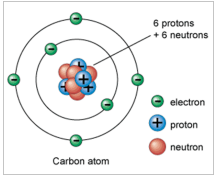


Use the biology book, pgs. 45-48 to fill in the chart.

Biomolecule	Elements	Monomers	Functions	Examples
Carbohydrate				
Lipid				
Protein				
Nucleic Acid				

Life is Carbon Based

Carbon + Hydrogen = Organic molecules



Carbon atom

CCCCCCCCCCCCCCCC(=O)O

Carbon can form long chains

C1=CC=CC=C1

Carbon can form rings

Sep 9-9:31 PM

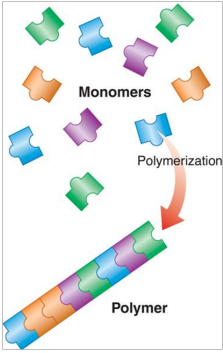
Sep 5-3:52 PM

I. Carbon Compounds

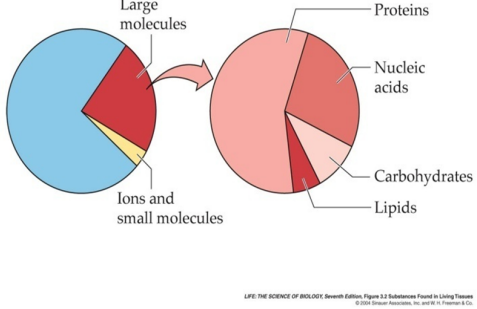
A. Many of the molecules in living cells are so large that they are known as **macromolecules**, which means "giant molecules."

1. (AKA)Also know as **biomolecules**.

B. Macromolecules are formed of small units called **Monomers**



C. Four groups of macromolecules found in living things: Carbohydrates, Proteins, Lipids, Nucleic acids



LIFE: THE SCIENCE OF BIOLOGY, Seventh Edition, Figure 3.2 Substances Found in Living Tissues © 2004 Sinauer Associates, Inc. and W. H. Freeman & Co.

Sep 5-4:26 PM

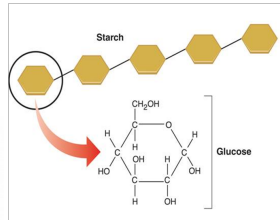
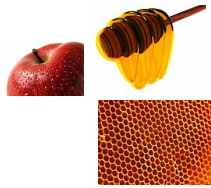
Sep 5-4:54 PM

## 1. Carbohydrate--Carbs!

**a) Made of:** Carbon, Hydrogen and, Oxygen

**b) Monomer:** Monosaccharide  
example: glucose (simple sugar)

**c) Polymer:** Polysaccharide  
example: starch, cellulose



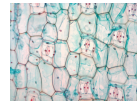
## Carbs.

### d) Functions:

**1) Main source of energy for living things.**



**2) Plant structure- cellulose**

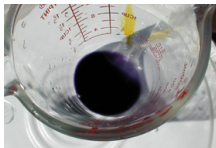


Sep 5-5:06 PM

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## e) Detecting Carbohydrates in food

**1) Iodine turns dk. purple or black in the presence of starch**

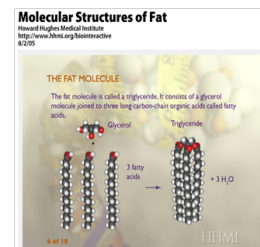


**2) Benedict's solution is an indicator for simple sugars (monosaccharides)**  
-turns yellow or bright orange

## 2. Lipids

**a) Made of:** Mostly Carbon and Hydrogen

**b) Monomers:** Fatty acids and glycerol



Sep 5-8:32 PM

Sep 5-8:46 PM

**c) Categories of lipids:**

- 1) Fats
- 2) Oils
- 3) Waxes

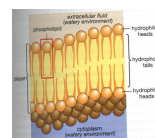
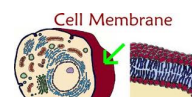


**d) Functions of Lipids:**

- 1) Energy storage



- 2) Main component of cell membranes



Sep 5-8:57 PM

Sep 5-9:01 PM

**e) Detecting Lipids in food:**



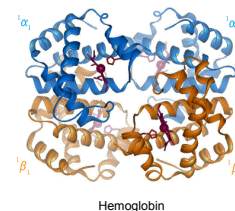
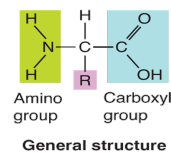
- 1) Indicator: Sudan III  
- turns red and bubbles if lipid is present



**3. Proteins**

- 1) Made of: Carbon, Hydrogen, Oxygen, and Nitrogen

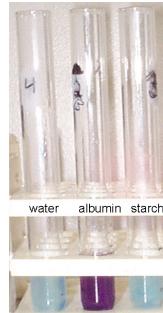
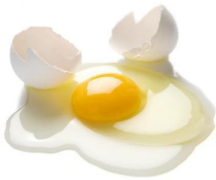
- 2) Monomers: Amino acids



Sep 5-9:11 PM

Sep 5-4:53 PM

**Biuret Solution is an indicator solution for proteins. It turns blue-violet in the presence of proteins.**

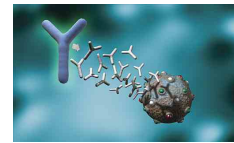


### c) Functions of Proteins:

1) Form bones and muscles



2) Help fight disease- Antibodies



Sep 10-9:48 PM

Sep 5-9:29 PM

3) Control the rate of reactions and regulate cell processes

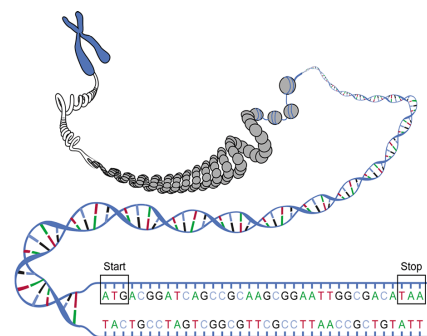
i) **Enzymes**- biological catalysts

ii) Change the speed of reactions in cells

iii) **Catalyst** speeds up the rate of the reaction by lowering the activation energy

**Activation energy:** energy required to get a reaction started

### 4. Nucleic Acids

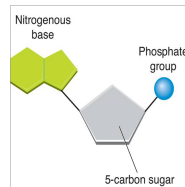


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**a) Made of:** carbon, oxygen, hydrogen, nitrogen, and phosphorous

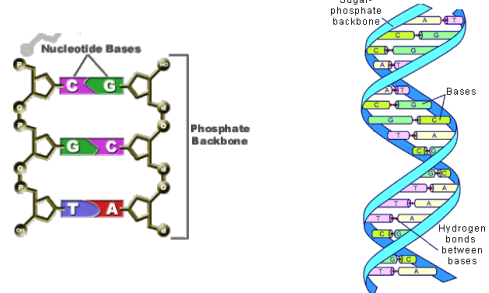
**b) Monomers:** Nucleotides



4 types of nucleotides:

Adenine  
Thymine  
Guanine  
Cytosine

Base-pairing

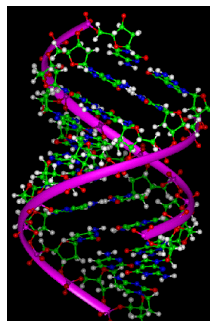


Sep 5-10:02 PM

Sep 11-7:10 AM

**d) Functions of nucleic acids:**

**1) Store and transmit genetic information**



Sep 5-10:13 PM